

CLAIMS

What is claimed is:

1. A top coating composition comprising:

a mixture of a polymeric binder, heat expandable graphite particles, a polymeric carrier and an effective amount of a pigment that is capable of providing a coating that has an initial energy efficiency rating greater than or equal to 0.65 for a low-sloped roof, or an initial energy efficiency greater than or equal to 0.25 for a steep-sloped roof, wherein said mixture has a solids content from about 50-75 % of which 1-10 wt. % is said expandable graphite particles.

2. The top coating composition of Claim 1 wherein the polymeric binder is a thermoplastic polymer or a thermoplastic rubber.

3. The top coating composition of Claim 2 wherein the polymeric binder is a thermoplastic polymer selected from the group consisting of acrylic or methacrylic polymers or copolymers, epoxy resins, and polyvinyl acetate.

4. The top coating composition of Claim 2 wherein the polymeric binder is a thermoplastic rubber selected from the group consisting of styrene-butadiene rubbers, styrene-butadiene-styrene rubbers, styrene-ethylene-butadiene-styrene (SEBS) rubbers, styrene isoprene styrene (SIS) rubbers, and styrene butadiene rubbers.

5. The top coating composition of Claim 1 wherein the polymeric carrier is water or a hydrocarbon solvent.

6. The top coating composition of Claim 1 wherein the pigment comprises titanium dioxide, calcium carbonate, colemanite, aluminum trihydrate (ATH), borate compounds or mixtures thereof.

7. The top coating composition of Claim 1 wherein the pigment is titanium dioxide.
8. The top coating composition of Claim 1 wherein the polymeric binder and the polymeric carrier form an aqueous polymeric-based emulsion.
9. The top coating composition of Claim 1 wherein the polymeric binder and the polymeric carrier form a solvent polymeric-based emulsion.
10. The top coating composition of Claim 1 wherein the polymeric binder is present in said mixture in an amount from about 5 to about 60 wt. %.
11. The top coating composition of Claim 1 wherein the polymeric carrier is an acrylic polymer that is present in said mixture in an amount from about 30 to about 50 wt. %.
12. The top coating composition of Claim 1 wherein the polymeric carrier is a thermoplastic rubber that is present in said mixture in an amount from about 8 to about 18 wt. %.
13. The top coating composition of Claim 1 wherein the pigment is present in said mixture in an amount from about 2 to about 20 wt. %.
14. The top coating composition of Claim 1 further comprising one or more optional components selected from the group consisting of dispersants, defoamers, fillers, solvents, microbiocides, thickening agents, additional fire retardants, pH modifiers, wetting agents, light stabilizers, and adhesion promoters.
15. A top coat comprising:

a cured reaction product of a polymeric binder, heat expandable graphite particles, a polymeric carrier and a pigment, said cured reaction product having an initial energy

efficiency rating greater than or equal to 0.65 when applied to low-sloped roof, or an initial energy efficiency greater than or equal to 0.25 when applied to a steep-sloped roof.

16. A roofing product comprising a substrate and the top coat of Claim 15.
17. The roofing product of Claim 16 wherein the substrate has surfaces with a slope of 2:12 inches or less.
18. The roofing product of Claim 16 wherein said substrate comprises single ply membranes, built-up roofing (BUR), modified bitumen, ethylene propylene diene monomer rubber (EPDM) or standing-seam profile.
19. The roofing product of Claim 16 wherein the substrate has surfaces with a slope of greater than 2:12 inches.
20. The roofing product of Claim 19 wherein the substrate comprises composite shingles, clay, concentrate, fiber cement tile, slate, shakes, architectural profiled metal or individual roofing components.